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FINANCE & DEVELOPMENT

A quarterly magazine of the IMF

December 2002, Volume 39, Number 4

# The Elusive Peace Dividend

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*How armed conflict and terrorism undermine economic performance.*

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The end of the Cold War was supposed to bring with it a "peace dividend" that would release resources for more productive purposes. Instead, we are witnessing an era of scattered conflicts, while terrorist groups have become more sophisticated and destructive. Between 1989 and 2000, more than 4 million people are estimated to have died in violent conflicts, while international terrorist attacks increased from about 342 a year between 1995 and 1999 to 387 between 2000 and 2001. Low- and middle-income countries have borne the brunt of the violence: almost 70 percent of major conflicts and more than 20 percent of international terrorist attacks between 1996 and 2000 took place in Asia and Africa.

Countries' short- and medium-term growth prospects are likely to suffer as a result of conflict and terrorist acts, as suggested by this paper and several country case studies:

- The total economic cost of the conflict in Sri Lanka between 1983 and 1996 amounted to about $4.2 billion, twice the country's 1996 GDP.
- Per capita GDP in the Basque region declined by about 10 percent, compared with a synthetic control region without any such violence, with the difference in per capita GDP widening in response to spikes in terrorist activity.
- The economies of Greece, Israel, and Turkey were adversely affected by terrorist incidents, and their market shares of tourist trade also fell, with spillover

effects for other Mediterranean countries.

- Terrorist acts and large-scale violence during 1960-93 hurt bilateral trade flows in a large number of countries.
- Tighter security precautions put in place in the wake of the terrorist attacks of September 11, 2001, have been estimated to cost the world about $75 billion. The IMF's *World Economic Outlook, December 2001: The Global Economy After September 11* indicated that the long-term cost could be as high as 0.75 percent of world GDP.

However, little analysis has been done to show how conflict and terrorism affect macroeconomic performance and public finances either *within* or *across* a large number of countries. Our research is intended to fill this gap. We first assess the impact of armed conflict within countries by examining the evolution of macroeconomic and fiscal variables (such as growth, inflation, government revenues, expenditures, and budget balances) before (three years, on average), during, and after (three years, on average) 22 episodes in up to 20 conflict-afflicted countries between 1985 and 1999. Six of these are in Africa, three in Latin America, two each in Asia and the Middle East, and seven in Eastern Europe and the former Soviet Union. Then, to examine more rigorously the effects of conflict and terrorism, we econometrically estimate a system of interlinked equations covering a wider range of 45 countries, including those not affected by conflict and terrorism. Our findings confirm that armed conflict and terrorism hurt economic growth and public finances, raising important issues for policymakers.

### How countries are affected

Armed conflicts and terrorism can affect countries' fiscal accounts by disrupting economic activity, lowering the efficiency of tax administration, and affecting the composition of public spending in a manner that reduces growth.

Military expenditures typically increase in response to conflict and terrorism and tend to remain high even after the violence ceases. Higher military spending can, in turn, reduce outlays for education, health care, and other productive activities. Moreover, the destruction of physical infrastructure, interruption of education and health services, and indirect effects on trade, tourism, and business confidence all weaken a country's fiscal position and hurt economic growth. Some have argued that defense spending can potentially spur growth by providing both internal and external security, thus boosting private savings and investment and attracting foreign investment. Most of the literature, however, shows that the majority of countries can encourage growth by decreasing military spending, which frees up resources for capital formation.

**Impact of past conflicts**

What impact has conflict had on growth? We find that GDP growth does indeed pick up significantly in the years immediately after a conflict ends. Inflation soars during conflicts and declines dramatically afterward (Chart 1; the sample size varies in the charts depending on data availability). Moreover, the share of gross fixed capital formation in GDP increases significantly immediately after a crisis ends.

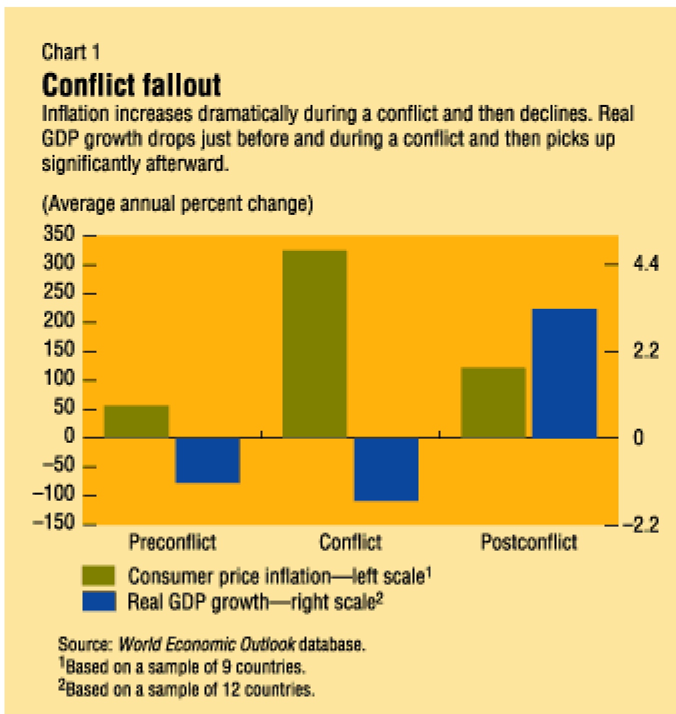
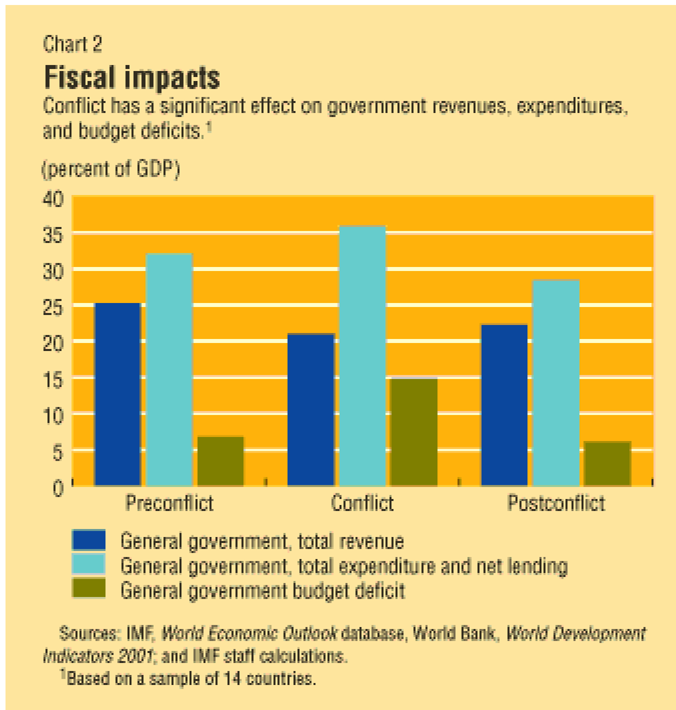
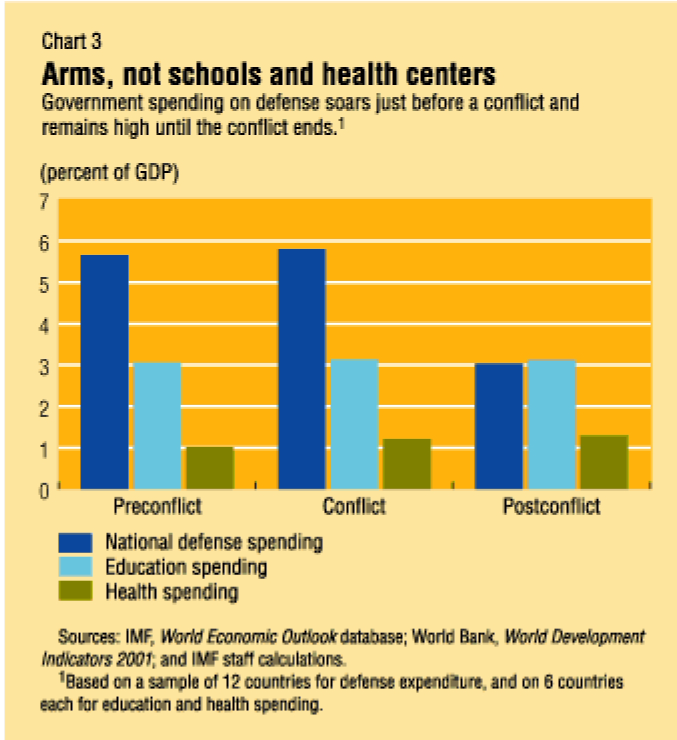



Chart 1
**Conflict fallout**
Inflation increases dramatically during a conflict and then declines. Real GDP growth drops just before and during a conflict and then picks up significantly afterward.

Source: *World Economic Outlook* database.
[1]Based on a sample of 9 countries.
[2]Based on a sample of 12 countries.

What happens to government spending and revenues? According to the data, the share of government revenue in GDP tends to fall during a conflict and to pick up somewhat immediately after it ends (Chart 2). Government spending and net lending as a percent of GDP appear to increase significantly when a conflict erupts and then decline markedly when the conflict ceases. High defense spending during a conflict and in the years immediately preceding it tends to come at the expense of macroeconomic stability—as reflected, for example, in higher budget deficits and rising inflation—rather than at the cost of lower spending on education and health care as a share of GDP (Chart 3). Nevertheless, real levels of spending on education and health care suffer during a conflict because they fall with the decline in economic activity (see table). When insecurity or violence triggers an economic downturn, tax revenues drop. Armed conflict—especially if prolonged—can also destroy part of the tax base by, for example, wiping out business firms.






As can be expected, conflicts worsen socioeconomic indicators, at least initially. The rate of improvement of life expectancy at birth declines significantly during a conflict but picks up again in the immediate postconflict period. Gross school enrollment rates improve dramatically at all levels following the end of armed conflict. However, the rate of improvement of infant mortality deteriorates significantly during conflict years, and the deterioration continues into the immediate postconflict period.

**Testing the findings**

These results, however, should be interpreted with caution. The above analysis does not control for variables other than armed conflict that can also affect macroeconomic and fiscal outcomes. To isolate the effects of conflict and terrorism, we use a more rigorous model designed to show the diverse channels through which such events can affect a country's economic growth and public finances. We estimate simultaneously equations for economic growth, government tax revenues, and the composition of government spending, and include not just our measures of conflict and terrorism but also other relevant explanatory variables. The analysis is based on a cross-country data set for 45 countries, of which about two-thirds were not afflicted by conflict and terrorism, using five-year averages of annual data over 1980-99.

To test this model, we first examine whether growth is affected by variables that measure conflict and terrorism. We use two measures: one for conflict and terrorism and another for conflict alone. An index compiled by the International Country Risk Guide (ICRG) is used for the former, while information compiled by the Stockholm International Peace Research Institute (SIPRI) is used for the latter (see box). We also include other variables known to influence economic growth, such as initial per capita income, initial levels of schooling, the age-dependency ratio (the ratio of very young and old people to the working-age population), and a proxy for the composition of government outlays. Second, we look at tax revenues, using the level of real per capita income and the ratio of nonagricultural exports to total output as explanatory variables, as well as the conflict and terrorism variables. This allows us to capture both the direct impact of conflict and terrorism on revenues and the indirect impact through their adverse effects on economic activity. Third, we analyze the determinants of the share of government spending absorbed by military outlays, using the conflict and terrorism indices as explanatory variables, as well as the defense spending of neighboring countries. This allows us to test the impact of conflict and terrorism on growth through their effects on the composition of public spending.

**Defining armed conflict and terrorism**

There are no universally accepted definitions of conflict and terrorism. In our preconflict, conflict, and postconflict analysis, we use data compiled by the Stockholm International Peace Research Institute (SIPRI) to identify conflict-affected countries and the period(s) of conflict. SIPRI characterizes a country as being affected by major armed conflict if the cumulative battle-related deaths since the beginning of the conflict total at least 1,000, and there are at least 25 additional battle-related deaths in that year.

In our econometric analysis, we use the SIPRI index for conflict and the International Country Risk Guide (ICRG) ratings on conflict as a proxy for the combined risk from terrorism and conflict. The SIPRI index is the proportion of each five-year period during which there was a major armed conflict in the country. The ICRG ratings provide an overall assessment of violence in a country because of civil war, terrorism, and civil disorder; unfortunately, separate risk ratings for terrorism are not available. The highest rating is given to those countries "where there is no armed opposition to the government and the government does not indulge in arbitrary violence, direct or indirect, against its own people." Thus, the ICRG ratings allow analysis of the impact of conflict and terrorism on a wide range of countries and not just on those that have had major armed conflicts as defined by SIPRI.

The statistical results from the model confirm the findings of our "before, during, and after" analysis of conflict-affected countries. Our measures of conflict and terrorism and of conflict alone have a statistically significant impact on the share of defense spending in total government outlays, which, in turn, tends to depress economic growth. Government revenues are also *indirectly* affected by conflict and terrorism through their detrimental effects on growth, although there is no statistical evidence that conflict and terrorism *directly* affect revenues. Conflict also has a direct effect on growth, while the measure for conflict and terrorism has no statistically significant effect.

**Policy implications**

Our results suggest that countries that end conflicts and combat terrorism will realize sizable economic gains in terms of growth, macroeconomic stability, and the generation of tax revenues. Ending conflict and terrorism and restoring security can result in a substantial peace dividend, freeing up fiscal resources that a country can use to lower its deficit, reduce taxes, or raise the allocation for propoor spending.

Successful reconstruction after conflict involves rebuilding damaged institutions and infrastructure, which takes time and often requires continued involvement of donors and the international community. The IMF has been involved in lending in postconflict countries since 1995, as part of its emergency assistance facility. From 1995 to 2000, the IMF provided $300 million to seven postconflict countries.

*This article is based on Sanjeev Gupta, Benedict Clements, Rina Bhattacharya, and Shamit Chakravarti,* Fiscal Consequences of Armed Conflict and Terrorism in Low- and

Middle-Income Countries, *IMF Working Paper No. 02/142 (Washington).*

**Quality of life**

Social indicators worsen in countries involved in armed conflicts[1]

| | Preconflict | Conflict | Postconflict | Number of countries for which data are available |
|---|---|---|---|---|
| | (average annual rates of change) | | | |
| Life expectancy at birth, total (years) | 0.4 | -0.5 | 0.4 | 5 |
| Mortality rate, infant (per 1,000 live births)[2] | [0]3.8[0] | [0]-0.6[0] | [0]0.0[0] | [0]7[0] |
| Gross primary enrollment rate | ... | -2.6 | 3.2 | 9 |
| Gross secondary enrollment rate | ... | -1.1 | 2.1 | 9 |
| Gross tertiary enrollment rate | ... | -1.5 | 2.1 | 9 |
| Memorandum items | | | | |
| Education spending(real per capita growth, median) | ... | -4.3 | 5.4 | 8 |
| Health spending(real per capita growth, median) | ... | -8.6 | 5.1 | 8 |

Note: ... means data not available.

[1]Combines all the low-, lower-middle-, and upper-middle-income countries affected by armed conflict as discussed in the article. Income categories are based on World Bank criteria, in terms of level of 1998 GNP per capita. For low-income, $760 or less; for lower-middle-income, $761-$3,030; and for upper-middle income, $3,031-$9,360.

[2]Positive rates of growth signify improvements.

Sources: IMF, *World Economic Outlook* database; World Bank, *World Development Indicators, 2001*; national authorities; and IMF staff estimates.

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